

Andoverant & Ft. Dauphin.

7th Day continued -

M. of R. Mangátsiotra	
Mangátsiotra	12
ampási miloka	
Ambolipeno Ft.	4
Day's Journey	29
Total	237
Savána	4

8th Day Ambolipeno to Ambáhy

Junction of Rivers Analaka & Matitánana.	
R. Maity joins R. Matitánana	
Máhamánina Ft.	6
M. of R. Andákana	1/2
M. of R. Anávo-tra	1/2
Ranámbo	3 1/2
M. of R. Salóhy	
R. Mahitsy	
Anósi Kely	10 1/2

Confluence & Mouths of Rivers Manambava, Manampetra	
Manambato	9
Fara fángana	1/2
Ambáhy	1/2
Day's journey	35
Total	272

9th Day Ambáhy to Vainaindrano

Máhafasy	
Mahavilona	
M. of R. Mánasimba	8
Ankarana Ft.	
M. of R. Takóándry	8
Iangongo	1 1/2
Mámanivo	5
Béanorimana	5
Vangaindrano Ft.	27 1/2
Day's Journey	299 1/2
Total	

The custom house & Port of Vangaindrano.
Vangaindrano Ft. up the R. 7 miles
west of Béan-orimana, 300 miles S.
of Andoveranto.

Andoverant to Ft. Dauphin.
10th Day Vangain-drano to Somisika

R. Mananara	1
Betapo Village	
M. of R. Masianaka	10
Ekiéna	2
M. of R. Manombondro	10
Somisika	18
Day's Journey	41

Total 340

Eleventh day Somisika to Tanambé

Ambalojandrano	5
M. of R. Ringitra	4
M. of R. Javibola	7
Tanambé or Javibola	1
Day's Journey	25
Total	365

Vohivarikia	15
Ambatobé	5
Manankina	
R. Sambé & Village	5
Day's Journey	25
Total	390

R. Lovokantsantsa	7
Manambato	3
Tongotra Pt.	1
Lohavato	4
Manombok Hill	

Confluence & mouth of rivers	
Mainbava & Manambavarivo	3
N. pt. of St. Lucia bay	4
Manafiáfy	1
Day's Journey	23
Total	413

Twelfth day Tanambé to Sambé

13th day Sambé to St. Lucia

Andoverant to Ft. Dauphin
14th day, St. Lucia to Ft. Dauphin.

Peak of Itapiribi	
M. of R. Mananivo	10
Lokara	
Marofolo Pt.	
Itapirina	
Ivatra	3
M. of R. Lingorano	
Fitoraka	

Limpomamy	
Limpomamy Lagoon	
St. Louis Hill	
Lake Masianaka	
Taolanara or Ft. Dauphin	4
Day's Journey	17
Total	430

Mahanoro to Antananarivo - (Grand idien)

Mahanoro	
Betsizaraina	5
Ambodifarana	8
Ambodiharamy	14
Ambodihara	12
Ambohitsara	16
Madia	14
Vohibolo	8
Mahatsara	6

Ambohitromby	10
Ankadilanany	8
Beparasy	13
Ambodimivongo	10
Soatsimanampiovana	12
Ambatomanga	6
Antananarivo	18
From Mahanoro Total	158

On the R. Mangoro

Lieu charmant qui ne changera jamais.
The place formed by the late M.
Labordé for Ranavalona I

Antananarivo to Mahanoro - Jukes & Lord.

Antananarivo		
Antanámaláza	12	19 th July - Rolling morrlands - Lofty heights overlooking Antkay valley. Narrow path through dense underwood.
Halt (20 th July) -	8	
Crest of Ankáfona Hill (Valley of Lohosáha)		
Ankádibaváva	10	21 st July.
Halt 22 nd July.	30	

Sámbatánana stream		
Ámbatobratra Hill (Ifody & Angavo mts.).	5	A mass of deep gullies, ravines & sinuous valleys.
Beparasy.	15	23 rd A large dirty turn with a large chapel.
R. Ankádimboá	50	24 th Course S.E. over undulating ground. Manákana 16 houses - Path along banks of river.
R. Mangoro		
Manákana		
Junction of R. Isáka w. Mangoro		
Narrow Pass.		
R. Mangoro rapids		
Andakána		
Cross R. Mangoro	13	25 th Safara R. flows S. in a course 11 to the Mangoro, wh. it joins to the East of the great bend.
Forest		
R. Safara tributary of Mangoro.		
Waterfall 200 feet.		
Imáhatsára		
Forest country	15	26 th Through dense woods.
Maro maitso	12	27 th

Maromaitso (?)	10	28 th Maromaitso contains 40 houses.
Antananámbina	10	
Ampásimadúrika		
Ambalaváto	14	29 th Yms of travellers trees along a narrow valley.
Halt.		
Trátranaúgitra		
Tsarafanina hill	6	30 th
Village (unnamed).		
Mangoro banks		
Ambódírana	10	
Village at foot of rapids		
By water to Betsizaraina	10	
Hava 7c. Mahanoro	8	Total 158-

Fianarantsoa & Masindrano.

		direction	
Fianarantsoa ^{to} Alakamisy	17	NE	Over grassy hills & downs, cross Matsitra, canoes, but fordable in dry season.
Ivato talana	13	N.E	over grassy plain with shrub.
Ranomafana	14	E	Over grassy plains, cross headwaters of Inamoronana, dense forest; steep descent.

Ambatana fiasana	25	S.E	Down the wooded valley of Inamoronana.
Ampao mpotsy	19	E	Through wooded valley, crossing many streams.
Imaroavy	9	E	Wooded valley.
Ivato vavy	18	ESE	Wooded valleys; rapid descent; high hills on left; leave forest for open country.
Antanambao	14	N.E	Grassy plains.
Isiatosika	12	NE, N	Grassy plains with patches of wood; cross R. Mananjara in canoes.
Masindrano	10	E	By river in canoes.

Total

157

Masindrano & Fianarantsoa.

Masindrano to Ambatavotaka	9	S.	Through scrub & forest; cross lake in canoes.
Imarohita	8	S.	over open country a little from sea coast; cross lake in canoes on leaving Ambatavotaka.
Namoronana	15	S.	Grassy plains with forests, west of lakes; cross lake near Imarohita, & R. Inamoronana in canoes.

Ambotaka	20	S.	Over grassy plains & several deep water courses.
Tanambao	15	N.W.	Up valley of Taroany; open grassy country.
Ivohimamitra	8	S.W.	Grassy country, with forest patches; cross R. Taroany in canoes.
Imahamay	12	N.W.	Up wooded valley of Taroany.
Ivohimamitra	24	W.	Wooded valley & grassy hills.
Ambohimanga Kely	10	N.W.	Forest & wooded valleys; cross R. Taroany.
Anjolobato	11	N.W.	" " " " ; high mts. in front.
Ifondranava	18	W.	ascend to high land through forest;
Fianarantsoa	15	N.W.	grassy plains w. several marshy streams.
Total	165		

$$\begin{array}{r}
 6\frac{3}{4} \\
 \underline{60} \\
 360 \\
 \underline{40} \\
 400 \\
 \underline{60} \\
 460
 \end{array}$$

$$\begin{array}{r}
 20/20 \\
 \underline{4\frac{1}{2}} \\
 3 \\
 \underline{13\frac{1}{2}} \\
 20 \\
 \underline{103\frac{1}{2}}
 \end{array}$$

Andoverant & Fort Dauphin

First day Andoverant. to Maintanandry

Andoverant	
Mouth of R.	
Iaroka.	
Tanimandry Fort	1
N. extremity of	
Lake Salo	6
S. extremity of	

L. Salo	$\frac{1}{2}$
N. extrem. of	
L. Vahia	$\frac{1}{2}$
S. extrem. of	
L. Vahia	2
Nava Lavo.	
N. pt. of ^{channel} Lagoon	
of Tanguzy Ch.	1
S. pt. of channel	
of Tanguzy Lagoon	6
N. extremity of	
reach extending to	
Vatomandry	1
Vatomandry Fort	6
Mouth of River	
Sakariro	1
Maintenandry	13
Days Journey	39

Second Day Maint. to Mahanoro.

Mouth of River	
Sakalina	$\frac{1}{4}$
Antaimoro Village	8
S. pt. of Mainten	
andry Lagoon	$1\frac{1}{4}$
Marosiky	5
M. of R. Manandry	$\frac{1}{4}$
Beparasy	7
Confluence of Rivers	
Osy & Lohaviana	

Andoverants of St. Dauphin		Remarks by W. L. A.
Confluence of Rivers		
Sasaka & Tantama		
M. of R. Sasaka	8	
Mahanoro	1/4	
Days Journey	30	
Total	69	

Third day Mahanoro & Ambalavontaka

Ambodirafara	1	
Betsizaraina Ft.	1 1/4	
Autsivalena	1	
Iasina	3/4	
Salo	1	
M. of R. Mangoro	1/4	
Ambodiharana	1/4	
Rantana	7	
S. pt. of Sahavi Chan.	1/4	
Andranotsara	1/2	
M. of R. Lo'otra	1/4	
Antanjondrano	1/4	
Ampanontana	5	
Va'lon Kidanja	4	
Confluence of Rivers		
Sahantsio & Mahasora		
M. of R. Mahasora	1 1/2	
Masomeloka	1/2	
Analailla		
Ambalavontaka	8	
Days Journey	32 3/4	
Total	101 3/4	

4th day Ambat. & Tanandava

M. of R. Ivolo	2	
Ambohimanoro	1 1/2	
No'sindravina	2	
Sakaleo	3 1/2	

Andoverants of St. Dauphin		Remarks by W. L. A.
Fourth day continued		
M. of R. Sakaleo		
No'sivarika	3	
Ambosahana	2	
Antara Lambo		
Tanambao		
Ioanandra		

Amboamantra		
Mambazato	1/2	
Fanivilona		
Ambodiharamay		
Andranontsindrano	2 1/2	
Anala'olona		
N. pt. of Fenarivo	2 1/2	
S. pt. of Fen. lagoon	1 1/2	
Antanambao		
Ambaha		
Lohivohitra chan.		
M. of R. Fanantara	7 1/2	
Ivohitronby		
Ambolitsara	1/2	
Andranomidiroka		
R. Sakaro, entrance		
to Ranganzava Cg.		
Mahela	8 1/2	
Mandinizara		

Tanandava Ft.	2 1/2	
Days Journey	40	
Total	141 3/4	

Fifth day Tanandava & Namorona

M. of R. Rangany		
S. pt. of Rangazara		
lagoon.	1/2	
M. of R. Iefaka	1 3/4	
Ampandenanana	3	

Andoverland to Ft. Dauphin.

5th day continued.

Ambolinato	5
Tsita to sika Ft.	2 $\frac{1}{4}$
S. pt. of Iyaka ch	2
Chan. leading to	1
Mananjara.	
Masindrano	3
of R. Mananjara	$\frac{1}{4}$

Reached Ambolinato in 2 hr. 8 m from Iyaka.
Tsintorika Fort. does not lie any where over the
route it is miles away up the river Mananjara.
no water crossed between Iyaka & Masin-
drano. reached Ampandana 13 m. $\frac{3}{4}$ hr.
from Iyaka. Masindrano $\frac{3}{4}$ hr. 2 m further
ankatafana is $\frac{1}{4}$ mile from the Vinang.

Ambodirao	1
Betsizarai	3
Antsivalen	2
Iasina taka	0
Salo	5
M. of Ringary	
Ankitay	6
Ambolipetrana	
Virangirana	8
M. of R. Namoron	$\frac{1}{4}$
Namorona	2 $\frac{1}{4}$

Un important of $\frac{1}{4}$ m. or
cross here, ending at Longozo (no village). At Iam-
boy a small vinana occurs (closed at this time).
(Town of 20 huts) Ambalavontaka is $1\frac{1}{2}$ m. beyond the
vinang. $\frac{1}{2}$ m. beyond A. occurs Manapana, a
village of 3 or 4 huts. a branch of the Betsimisaraka called
Marohita, about 20 houses neat & clean, inhabited by
Bylokana Ankitay is $2\frac{1}{2}$ hr. from Marohita & another
village is $\frac{1}{2}$ hr. further on. Ambolipetrane is $4\frac{1}{2}$ hr. f.
+ $\frac{1}{2}$ hr. of Virangirana Vinang. V. village lies 1 m. S. of Vinang.
Namorona lies 1 m. up River N. to the West of route.

Day's journey

46 $\frac{1}{4}$

Total

188

6th day Namorona to Loharano

Cross an Ampandana of $1\frac{1}{2}$ hr. $4\frac{1}{2}$ m.
Loholoka 10 houses.

Masindrano Kely	$1\frac{1}{2}$
Loholoka	4
Andranbomaro	$1\frac{3}{4}$
M. of R. Andotso	$\frac{1}{4}$
Vato masina Ft.	$\frac{1}{2}$
M. of R. Faraoany	

Sohimasa or Ambontaka - No Hwa garrison but
large village (Antaimoro) of 150 - 200 houses.

Ambato soa	2 $\frac{1}{2}$
Ilaimbazaha	
M. of R. Itampolo	
Loharano	9 $\frac{1}{2}$

Day's journey

20

Total

208

7th day Loharano to Ambolupino

R. Mananano	
Mananano	4
M. of R. Manankara	
Manankara	9

Harvey

spring some that a large train could
readily exhaust, which has fishes similar
to the slender species of the before men-
Fishes of Comanche, Leon & Escondido Springs. (5)

The Comanche is the largest and is the
only one, whose waters run more than
a few miles above ground. All this water
has the same character - limpid but
charged with chemical impurities.

The greatest number variety ~~one~~ species
the Comanche; the two smaller species
only occurring in the others. These are very
similar in habits as well as form to
the fishes of the Coast feeding in knots
in the mud and ~~at~~ about the roots of the
graps. Though all these springs have
some species common, the Catfish
volturnus, belong only to the Comanche. If
these spring were ~~not~~ stocked with
fish from a common source, has the
(Catfish volturnus) disappeared ^{in some of them} because of
the quantity or quality of the water.
The limpia a very insignificant little
brook running but a few miles
above ground has its fishes; and
to the south east of this brook on a
route to Presidio del Norte is a small

Notes on Fishes collected
in the U.S. Mex. Boundary Survey
J. H. Clark

(Rejecting the assumption of having
been brought in a duck's gizzard - more
fanciful and ingenious than philosophic

Glenn

spring some that a large train could
readily exhaust, which has fishes similar
to the slender species of the before men-
tioned springs. This spring has a very
limited drainage, has no connection
whatever ^{with} any arroyo and is dissipated
by sinking or evaporation within a quarter
of a mile of its head. The presence of
fishes in such isolated ^{spring} ~~locations~~ is to
me wholly unaccountable; if they ^{followed up} ~~came~~
from other water, it must have been
before its connection was interrupted
by the surface of the earth as at present
existing

Texas trout. This delicious pan-fish inhabits all the clear water streams so numerously springing out from ^{their} under the great "Elans estacado". In a transparent habitation renders an observation of their habits an easy & gratifying entertainment; they are seen lying still after the manner of a pike, ^{under some rock or log} or ~~usually~~ ^{usually} quietly swimming around in small schools at a fathom or less depth. They may take grasshoppers, bugs &c like, but minnows, ~~to~~ ^{mainly} ~~claw fish~~ rather truly aquatic animals, constitute their food. They afford exquisite sport to the angler who is successful however must keep a supply of live minnows and attach them to the hook without killing them. ^(Parasitic) The trout takes its ^{bait} rather gently, which it swallows deliberately and as a rule does not dart off till it feels the line in its mouth or the hook in its stomach. It attains to six or eight pounds in weight - pulls heavy on the line and can seldom be taken in a seine which it no sooner touches than it leaps. Like the fishes of its kind ^{to} with large and ^{open} ~~exposed~~ gills ^{ex} ~~exposes~~ it to a rapid desiccation of course death.

2
Buffalo fish. ~~So~~ So called because of
its great size or some fanciful resem-
blance to that ^{Buffalo} animal, and is one of
the few fishes that inhabit the dirty and
otherwise impure waters of the Pecos and
Rio Grande; it also occurs in the clear
water streams, when its supply seems to
depend upon the freshets, during which
~~they~~ ^{it} undoubtedly comes up, as imme-
diately after, it is seen in greater abun-
dance than at any other time. ~~Schools~~
Schools of twenty or thirty weighing as
many pounds were seen lying on
the bottoms of the deeper holes of the
Rio Nueces in particular; ~~of its real~~
large proportions ~~being~~ ^{are} greatly magnified
~~by refraction~~ as seen ~~through~~ ⁱⁿ the limpid water,
~~rather~~ ~~than~~ ^{is surprising} the beholder to find
such small waters producing ~~such~~
fishes. It is sometimes left ^{in pools} in such
numbers, particularly on Den. river, by the freshets
as to afford food for the ~~very~~ Coyotes. Could
never find any hole that it would take -
the smaller ones ^{frequenting shallow water} are easily captured
by ^{lying} lance ~~them~~ or stung ~~them~~ by
the discharge of a pistol. It is soft,
bony & otherwise exceptionable as food.

Gila trout. The specimens of this fish were procured in ^{the waters of} the Rio San Pedro ^{when muddy} with a seine; ~~when it was~~ ^{but little} ~~were~~ ^{there was consequently no opportunity} to observe its habits. It is less conspicuous than the Texas trout, ~~for the reason~~ it ~~keeps deeper in the water~~ because the water which it inhabits is less limpid and also because it keeps further below the surface. It took the hook baited with grass hoppers but not very readily. It does not leap the seine & was caught in company with the large mouthed suckers & other species.

Catfish & suckers of the Mimbres. Unlike all other species of the kind, ^{these} do not habitually keep on the bottom. At the time these were caught the Rio Mimbres was a succession of pools, partly filled with an aquatic grass, above which these two species were seen swimming around in perfect harmony. Readily alarmed, shy of off into the grass, and generally declining all sorts of enticing baits. Their indifference to animal food - an unusual thing with a catfish led to the conclusion they both were herbivorous. To settle the question by an examination of stomach.

4

Fishes of Babacomari Sonora. The ^{of these} ~~fast~~ streams are very abundant and take ~~but~~ of any kind very ^{rapidly} voraciously affording excellent sport, which was heightened, in the then straightened condition of Cur- stones, by the anticipation of a savory dish. The sonora is one of the many streams of Northern Mexico, that after a succession of risings & sinkings finally disappears altogether as soon as it emerges from the mountains in which it takes its rise. On seining for the suckers, it was found that they made for the head of running water or the under ground portions of the stream, evidently seeking it for protection if not living there habitually. This stream may in seasons of freshets reach the Rio Santa Cruz & thus the ^{source} ~~origin~~ of its fishes accounted for; but this only carries the question of origin but one step back, for the Rio Santa Cruz itself continues from a few miles ^{below} ~~above~~ its head continues to diminish till by evaporation & dissipation through the sand, not one drop of its water in all human probability ever reaches the Gila, the Colorado or Gulf of California.

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